

U.S. Patent Application No. 10/824,985
Reply to Office Action dated January 25, 2007

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450100-4879.1
APR 24 2007

IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1-19 (Cancelled).

20. (Currently Amended) A data transmission controlling method for controlling transmission of data from data transmitting means to data receiving means over communication channels and for causing said data transmitting means to encrypt data and transmit the encrypted data to said data receiving means over said communication channels, said data transmission controlling method comprising the steps of:

encapsulating the data to be transmitted in multiplexed fashion in accordance with a first protocol;

encrypting at least one of data capsules resulting from the encapsulation; and

encapsulating the encrypted data capsules in accordance with a second protocol

wherein the first protocol pads a portion of 0 to 63 bits with a corresponding "1" as a suffix to the data, thereby maintaining a predetermined data length.

21. (Previously Presented) A data transmission controlling method according to claim 20, wherein said encapsulating in accordance with said first protocol supplements a real data part including said data to be transmitted to said data receiving means with an additional information part associated with said real data part.

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22. (Original) A data transmission controlling method according to claim 21, wherein said additional information part includes destination address information identifying the data receiving means authorized to receive data included in said real data part.

23. (Original) A data transmission controlling method according to claim 22, wherein said destination address information is either individual or group destination address information.

24. (Original) A data transmission controlling method according to claim 22, wherein said data transmitting means possesses session keys corresponding to said destination address information, said session keys being used by said data transmitting means to encrypt information and data and by said receiving means to decrypt the encrypted information and data received; and wherein said data transmitting means transmits in advance said session keys to the data receiving means authorized to receive the transmitted information and data in accordance with said destination address information.

25. (Original) A data transmission controlling method according to claim 24, wherein said session keys are updated at predetermined intervals.

26. (Original) A data transmission controlling method according to claim 24, wherein said session keys are transmitted over a communication channel permitting either unidirectional communication from said data transmitting means to said data receiving means or bidirectional communication therebetween.

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27. (Previously Presented) A data transmission controlling method according to claim 21, wherein said encapsulating in accordance with said first protocol uniquely determines how said destination address information attached to said real data part is stored into said additional information part, said encrypting step further encrypting said real data part using a master key specific to the data receiving means corresponding to said destination address information.

28. (Original) A data transmission controlling method according to claim 22, wherein said additional information part provides a 48-bit space in which to accommodate said destination address information.

29. (Previously Presented) A data transmission controlling method according to claim 21, wherein said encapsulating in accordance with the first protocol encapsulates the data to be transmitted to said data receiving means in accordance with either the Internet protocol or the Ethernet protocol.

30. (Original) A data transmission controlling method according to claim 20, wherein said data receiving means is constituted as an IP router.

31. (Original) A data transmission controlling method according to claim 20, wherein said data receiving means is constituted as a bridge.

32. (Currently Amended) A data transmission controlling method for controlling transmission of data from data transmitting means to data receiving means over communication

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channels and for causing said data transmitting means to encrypt data and transmit the encrypted

data to said data receiving means over said communication channels, said data transmission

controlling method comprising the steps of:

encapsulating the data to be transmitted in multiplexed fashion in accordance with a first
protocol, wherein the first protocol pads a portion of 0 to 63 bits with a corresponding "1" as a

suffix to the data, thereby maintaining a predetermined data length;

encrypting the encapsulated data using an encryption key;

supplementing the encrypted data with encryption key information about said encryption
key;

encapsulating the encrypted supplemented data in accordance with a second protocol;

transmitting said encapsulated, encrypted data together with said encryption key information
from said data transmitting means to said data receiving means; and

decrypting said encapsulated, encrypted data using one of a plurality of decryption keys
which allow said data receiving means to decrypt said encrypted data and which are updated
frequently, said one of the decryption keys being selected in accordance with said encryption key
information attached to said encrypted data.

33. (Previously Presented) A data transmission controlling method according to claim 32,
wherein said plurality of decryption keys include a decryption key which is currently usable for
decrypting said encrypted data received, and a decryption key which is to be used next to decrypt
said encapsulated, encrypted data received; and

wherein said data decrypting step selects the currently usable decryption key based on said
encryption key information.

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34. (Original) A data transmission controlling method according to claim 33, wherein said encryption key and said decryption keys are session keys for encrypting information and data.

35. (Original) A data transmission controlling method according to claim 34, wherein said session keys are updated at predetermined intervals.

36. (Original) A data transmission controlling method according to claim 32, wherein said data receiving means is constituted as an IP router.

37. (Original) A data transmission controlling method according to claim 32, wherein said data receiving means is constituted as a bridge.